DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	COBBETTS POND, STN 1	**Lake Area (ha):**	139.5
Town:	WINDHAM	**Maximum Depth (m):**	19.2
County:	ROCKINGHAM	**Mean Depth (m):**	5.2
River Basin:	MERRIMACK	**Volume (m^3):**	7208000
Latitude:	42°42'47" N	**Relative depth:**	1.4
Longitude:	71°71'17" W	**Shore Configuration:**	1.77
Elevation (ft) :	177	**Areal water load (m/yr):**	2.12
Shore length (m):	7400	**Flushing Rate (yr^{-1}):**	0.4
% Watershed Ponded:	0	**P retention coeff.:**	0.8
Watershed Area (ha)	828.8	**Lake Type**	natural w/dam

BIOLOGICAL:		**26-Feb-04**	**27-Aug-03**
DOM. PHYTOPLANKTON (% TOTAL)	#1	ASTERIONELLA 40%	TABELLARIA 85%
	#2	SYNEDRA 40%	APHANIZOMENON 8%
	#3	APHANIZOMENON 20%	
CHLOROPHYLL-A (ug/L)			5.43
DOM. ZOOPLANKTON (% TOTAL)	#1	POLYARTHRA 50%	NAUPLIUS LARVA 31%
	#2	KERATELLA 24%	DIFFLUGIA 10%
	#3	NAUPLIUS LARVA 14%	KERATELLA 9%
ROTIFERS/LITER		190	68
MICROCRUSTACEA/LITER		46	122
ZOOPLANKTON ABUNDANCE (#/L)		236	237
VASCULAR PLANT ABUNDANCE			Abundant
SECCHI DISK TRANSPARENCY (m)			2.6
BOTTOM DISSOLVED OXYGEN (mg/L)		7.2	0.6
BACTERIA (E. coli, #/100ml)	#1		
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m):	8
Hypolimnion volume (m^3):	503000
Anoxic Volume (m^3):	424500

CHEMICAL: **Lake: COBBETTS POND, STN 1**
Town: WINDHAM

	26-Feb-04		27-Aug-03		
DEPTH (M)	6.0	12.0	3.0	9.0	15.0
pH (units)	7.2	7.0	7.4	6.6	6.6
A.N.C. (Alkalinity)	25.2	23.9	22.9	20.5	36.3
NITRATE NITROGEN	0.08	0.08	< 0.05		< 0.05
TOTAL KJELDHAL NITROGEN	0.50	0.50	0.30	0.40	1.20
TOTAL PHOSPHORUS	0.013	0.012	0.011	0.011	0.042
CONDUCTIVITY (umhos/cm)	356.0	359.0	337.0	324.0	339.0
APPARENT COLOR (CPU)	11	11	20	20	20
MAGNESIUM			1.95		
CALCIUM			14.9		
SODIUM			40.6		
POTASSIUM			2.78		
CHLORIDE	83	84	77		
SULFATE	9	9	9		6
TN : TP	45	48	30		29
CALCITE SATURATION INDEX					

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 2003

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	3	5	1	13	EUTRO

COMMENTS: NOTE: comments are for both Station 1 and 2 and are continued on the Station 2 sheet

1. No public access; we launched at a private, gated beach at the south end of the pond (need permission and key).
2. No wake zone in narrows.
3. Previously surveyed in 1976 and 1986, and a participant in VLAP since 1988.
4. The trophic class changed from oligotrophic in 1976 to mesotrophic in 1986 to eutrophic in 2003. There was an explosive growth of *P. perfoliatus* in 1985 and the exotic species of milfoil appeared in 1995. Other trophic parameters also worsened over the years.
5. VLAP data since 1988 show a worsening trend at both stations for chlorophyll, Secchi disk transparency and hypolimnetic phosphorus. .
6. Numerous ducks, geese and seagulls were observed on the lake; residents report an eagle has been visiting the lake all summer; residents also report that fishing is excellent.

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LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	COBBETTS POND, STN 2	**Lake Area (ha):**	139.5
Town:	WINDHAM	**Maximum Depth (m):**	19.2
County:	ROCKINGHAM	**Mean Depth (m):**	5.2
River Basin:	MERRIMACK	**Volume (m^3):**	7208000
Latitude:	42°42'47" N	**Relative depth:**	1.4
Longititude:	71°71'17" W	**Shore Configuration:**	1.77
Elevation (ft) :	177	**Areal water load (m/yr):**	2.12
Shore length (m):	7400	**Flushing Rate (yr^{-1}):**	0.4
% Watershed Ponded:	0	**P retention coeff.:**	0.8
Watershed Area (ha)	828.8	**Lake Type**	natural

BIOLOGICAL:		**26-Feb-04**	**27-Aug-03**
DOM. PHYTOPLANKTON (% TOTAL)	#1	SYNEDRA 50%	TABELLARIA 65%
	#2	APHANIZOMENON 30%	filam. BL-GR spp. 20%
	#3	ASTERIONELLA 15%	
CHLOROPHYLL-A (ug/L)			4.13
DOM. ZOOPLANKTON (% TOTAL)	#1	POLYARTHRA 63%	NAUPLIUS LARVA 26%
	#2	KERATELLA 22%	POLYARTHRA 14%
	#3	GASTROPUS 3%	KERATELLA 12%
ROTIFERS/LITER		381	29
MICROCRUSTACEA/LITER		19	35
ZOOPLANKTON ABUNDANCE (#/L)		408	77
VASCULAR PLANT ABUNDANCE			Abundant
SECCHI DISK TRANSPARENCY (m)			2.7
BOTTOM DISSOLVED OXYGEN (mg/L)		10.1	0.4
BACTERIA (E. coli, #/100ml)	#1		
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m):	5.8
Hypolimnion volume (m^3):	503000
Anoxic Volume (m^3):	424500

CHEMICAL: **Lake: COBBETTS POND, STN 2**
Town: WINDHAM

	26-Feb-04		27-Aug-03		
DEPTH (M)	4.0	8.0	2.0	8.0	14.0
pH (units)	7.3	7.0	7.4	6.7	6.7
A.N.C. (Alkalinity)	24.5	24.5	24.5	24.3	51.3
NITRATE NITROGEN	0.09	0.14	< 0.05		< 0.05
TOTAL KJELDHAL NITROGEN	0.60	0.60	0.30	0.40	2.30
TOTAL PHOSPHORUS	0.013	0.011	0.009	0.012	0.066
CONDUCTIVITY (umhos/cm)	370.0	388.0	341.0	343.0	494.0
APPARENT COLOR (CPU)	12	13	20	20	30
MAGNESIUM			2.00		
CALCIUM			15.5		
SODIUM			41.6		
POTASSIUM			2.83		
CHLORIDE	86	92	77		113
SULFATE	10	10	9		6
TN : TP	53	67	36		35
CALCITE SATURATION INDEX					

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 2003

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	3	5	1	13	EUTRO

COMMENTS: (continued from Station 1 sheet)

1. Lots of trash in the water along the shore.
2. This is a densely developed urban pond adjacent to an interstate highway. Elevated sodium, chloride and conductivity values indicate road salt runoff. Other cations were also elevated, typical of urban ponds. Elevated phosphorus (and total Kjeldahl nitrogen) in the summer bottom waters suggest internal nutrient loading.
3. Associated with the dense shoreline development was an abundance of docks and boats.
4. Diatoms were very abundant during the winter sampling.

FIELD DATA SHEET

LAKE: COBBETTS POND, STN 1 **TOWN:** WINDHAM

DATE: 8/27/03 **WEATHER:** Sunny, warm and windy

	DEPTH (M)	TEMP (°C)	DISSOLVED OXYGEN (mg/L)	PERCENT SATURATED
	0.1	24.9	7.8	94.3
	1.0	24.9	7.8	94.1
	2.0	24.8	7.8	93.6
	3.0	24.8	7.7	93.3
	4.0	24.7	7.8	93.6
	5.0	24.7	7.8	94.0
	6.0	24.6	7.8	93.9
	7.0	24.5	7.7	92.5
	8.0	18.0	3.1	32.8
	9.0	11.2	3.6	33.2
	10.0	9.1	0.2	1.7
	11.0	8.4	0.2	1.8
	12.0	8.2	0.2	1.8
	13.0	8.1	0.2	1.9
	14.0	8.1	0.3	2.2
	15.0	8.1	0.3	2.4
	16.0	8.1	0.4	3.5
	17.0	8.6	1.4	11.9
	17.5	10.3	0.6	5.3

SECCHI DEPTH (m) : 2.6

BOTTOM DEPTH (m) : 18.0

TIME: 925

COMMENTS:

There was no D.O. below 10 meters.

FIELD DATA SHEET

LAKE: COBBETTS POND, STN 2 **TOWN:** WINDHAM

DATE: 8/27/03 **WEATHER:** Sunny, warm and windy

	DEPTH (M)	TEMP (°C)	DISSOLVED OXYGEN (mg/L)	PERCENT SATURATED
	0.1	25.5	7.9	96.0
	1.0	25.5	7.9	96.3
	2.0	25.4	7.9	95.8
	3.0	25.4	7.8	95.3
	4.0	25.3	7.7	93.9
	5.0	25.1	7.8	94.0
	6.0	18.6	3.9	41.6
	7.0	15.6	4.2	42.5
	8.0	11.6	5.3	48.3
	9.0	11.0	5.4	49.2
	10.0	8.3	2.2	18.8
	11.0	8.4	0.5	3.9
	12.0	6.6	0.2	1.7
	13.0	6.2	0.2	1.7
	14.0	6.4	0.2	1.7
	15.0	5.9	0.3	2.8
	16.0	5.9	0.4	3.4

SECCHI DEPTH (m) : 2.7

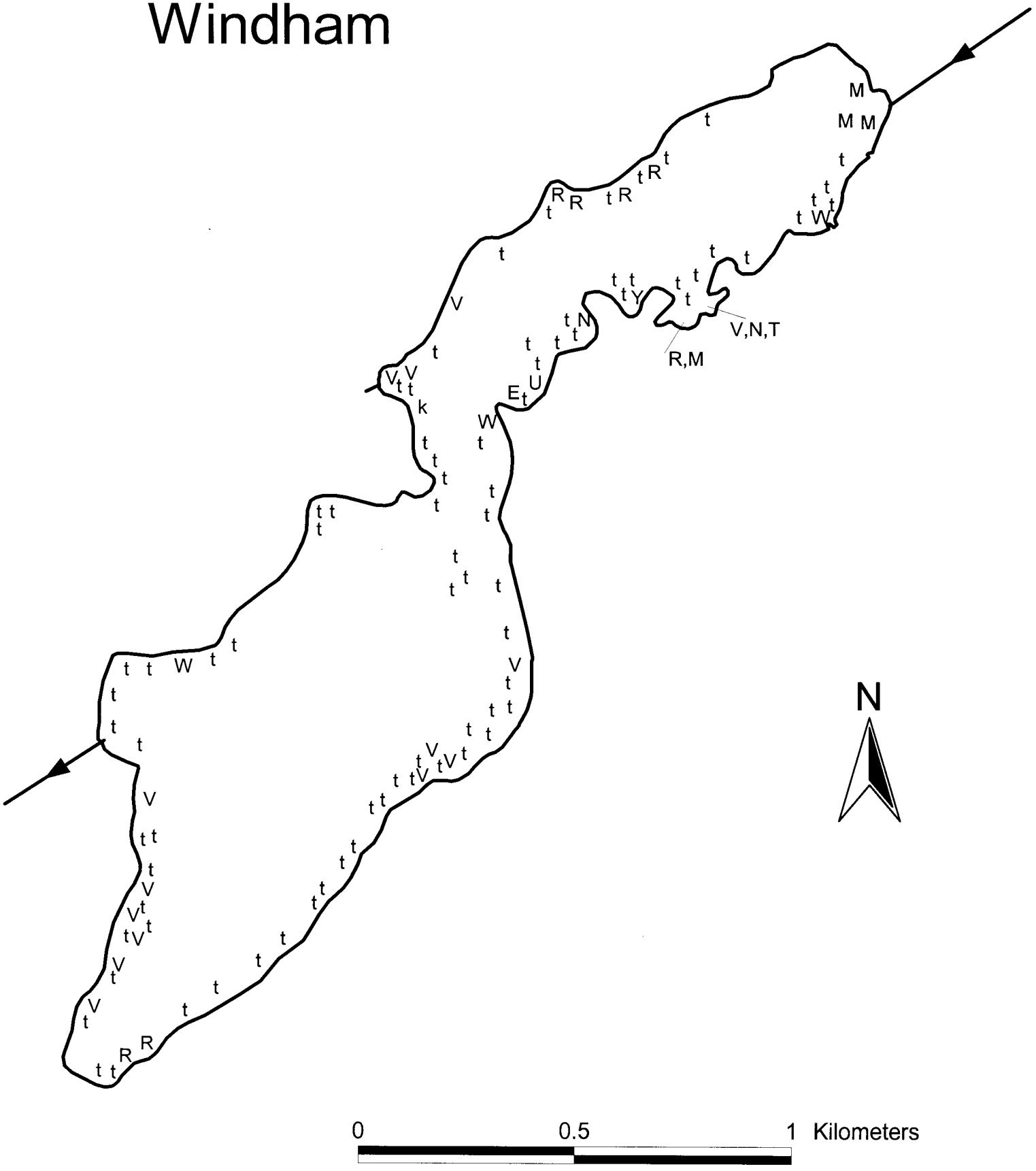
BOTTOM DEPTH (m) : 16.6

TIME: 1034

COMMENTS:

Cobbetts Pond

Windham



AQUATIC PLANT SURVEY

LAKE: COBBETTS POND **TOWN:** WINDHAM **DATE:** 8/27/03

KEY	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
t	Potamogeton perfoliatus	Clasping-leaved pondweed	Abundant
R	Potamogeton robbinsii	Robbins pondweed	Sparse
V	Vallisneria americana	Tape grass	Sparse
W	Potamogeton spp.	Thin-leaved pondweed	Sparse
E	Eriocaulon septangulare	Pipewort	Sparse
U	Utricularia	Bladderwort	Sparse
N	Nymphaea	White water lily	Sparse
Y	Nuphar	Yellow water lily	Sparse
M	Myriophyllum heterophyllum	Water milfoil	Sparse
T	Typha	Cattail	Sparse
k	Nymphaea	Pink water lily	Sparse

OVERALL ABUNDANCE : Abundant

GENERAL OBSERVATIONS :

1. *Potamogeton perfoliatus* was abundant around the entire shoreline. This plant first appeared in the pond around 1984, spread rapidly like an exotic plant and has been abundant since that time.

2. Exotic milfoil was present. It first appeared in 1995 and was treated with the herbicide diquat in 1996, 1998, 2002 and 2003 to help control its spread.

Cobbetts Pond

Windham